Great Britain, and his articles embrace a very wide range of topics relating to the several departments of scientific research to which he had devoted himself, and many of his researches have attracted unusual attention from their value as adding to scientific knowledge.

At the age of seventy-six his failing health compelled him to give up active duties as president, and he resigned to give place to Mr. Francis A. Walker. He still continued to hold the position of professor *emeritus*, and retained it at the time of his death. His health has permitted him to continue at his duties, but he has not been strong, and the cause of his death, as above stated, is supposed to have been apoplexy. He was appointed by President Hayes as President of the National Academy of Sciences, and had returned from Washington only a few days before his death, where he had been presiding over a meeting of the academy.

The *New York Nation*, in reference to the death of Prof. Rogers, says :—

The death of Prof. Wm. B. Rogers, in Boston, on May 30, removes not only one of the foremost of our scientific men, but perhaps the one who had in the highest degree the faculty of presenting the claims of science on popular interest and respect with force and lucidity. He had a remarkable gift of expression, and an unusually winning and persuasive manner, both of which were supported by a character of the utmost purity and simplicity.

NOTES

THE Council of the Society of Arts have awarded the Albert Medal of the Society of the present year to Louis Pasteur, Member of the Institute of France, For. Memb. R.S., for "his researches in connection with fermentation, the preservation of wines, and the propagation of zymotic diseases in silk worms and domestic animals, whereby the arts of wine making, silk production, and agriculture, have been greatly benefited. The Council have awarded the Society's Silver Medals to the following readers of papers during the Session 1881-2 :—To Prof. Silvanus Thompson, D.Sc., for his paper on "Storage of Electricity"; to J. Emerson Dowson, for his paper on "The Production and Use of Gas for Purposes of Heating and Motive Power"; to Col. G. F. Pearson, for his paper on "The Teaching of Forestry"; to Prof. Barff, M.A., for his paper on "A New Antiseptic Compound, and its Application to the Preservation of Food"; to Spencer Walpole, for his paper on "The Fish Supply of London"; to George F. Deacon, for his paper on "The Constant Supply and Waste of Water"; to Capt. Richard F. Burton, for his paper on "Gold on the Gold Coast"; to R. Warington, for his paper on "Some Practical Aspects of Recent Investigation in Nitrification"; to S. G. Thomas and Percy C. Gilchrist, for their paper on the "Manufacture of Steel from Phosphoric Pig-iron"; to Alexander M. Chance, for his paper on "The Recovery of Sulphur from Alkali Waste by Schaffner's Process, a record of recent results"; to James Mylne, for his paper on "Experiences of an European Zemindar (landholder) in Behar." Thanks were voted to the following Members of Council for the papers they had read :—To Capt. Douglas Galton, C.B., F.R.S., for his paper on "The American System of Heating Towns by Steam"; to W. H. Preece, F.R.S., for his paper on "Electric Lighting at the Paris Electrical Exhibition"; to Lieut.-Colonel C. E. Webber, R.E., for his paper on "Telephonic Communication"; to Sir Rutherford Alcock, K.C.B., for his paper on "The Opium Trade."

THE following has been forwarded to us from the Royal Society for publication :—

Florence, May 23, 1882

MY LORD,—An interesting commemoration in honour of Charles Darwin was held on Sunday last, the 21st instant, in the great hall of the Florence "Istituto di Studi Superiori." The commemoration was promoted by the Students in Medicine and Natural Science. The proceedings were simple, consisting of a few opening words by the Chairman of the Committee, Signor Fairman, a medical student, and a well turned and appreciative discourse by Prof. Mantegazza, whose scientific reputation is not confined to Italy. A bust of Darwin, in terra cotta, stood on the platform and marked the occasion. There were present the Prefect of Florence, the Council and Professors of the Institute, &c., while the large hall was crowded to overflowing with a mixed and attentive audience of ladies and gentlemen, showing the interest that the occasion had evoked.

I have, &c.,

(Signed) D. E. COLNAGHI,

H.M. Consul-General.

The Right Hon. Earl Granville, K.G., &c.

AN appreciative paper on Darwin, by the eminent naturalist, M. Alph. de Candolle, appears in the May number of *Archives des Sciences*. Darwin was prompt to acknowledge the work of his predecessors—Lamarck, Erasmus Darwin, and others—but seems with others to have overlooked the observations and ideas of Duchesne (1766), an evolutionist before Lamarck, to which M, de Candolle was able to call his attention while visiting him in 1880. Duchesne says: "The genealogical order is the only one that nature indicates, the only one that fully satisfies the mind; every other is arbitrary and vain (*vide d'idées*)." In the manner of exposition of facts and in reasoning, Charles Darwin (in M. de Candolle's opinion) rather resembles Duchesne than Lamarck or Erasmus Darwin. Lamarck is more systematic. Erasmus perceives much that he does not profoundly investigate; he is diffuse and lacks scientific method. Among other things. M. de Candolle remarks that nearly all *littérateurs* and men of science of the first rank have lived, during part of the year at least, in a town. One can hardly cite more than two exceptions (and they are very different), viz. Voltaire and Charles Darwin. The author gives an interesting picture of his visit to Darwin, who, as a septuagenarian, he says, "etait plus animé et paraissait plus heureux que je ne l'avais vu quarante-et-un ans auparavant, Il avait l'œil vif et une expression enjouée, tandis que ses photographies montrent plutôt sa conformation de tête d'un philosophe de l'antiquité. Sa conversation variée, franche, gracieuse, tout a fait d'un *gentleman*, me rappelait celle des savantes d'Oxford et de Cambridge." The author was struck with the sight of the domestic animals at Down, showing a "tranquillité qui suppose de bons maitres. . . . Vraiment, me disais-je, l'histoire des variations chez les animaux a été faite ici, et les observations doivent continuer, car Darwin n'est jamais inactif."

THE death is announced (though on doubtful authority) of Dr. Jules Crevaux, who has recently done so much for the exploration of French Guiana and the Amazon Valley. Dr. Crevaux, it is reported, has been assassinated, with his whole party, by Tobas Indians, while ascending the Pilcomayo River, on Argentine or Bolivian territory. He had started from Buenos Ayres, and had discovered near Salto the ruins of an ancient native city. The unfortunate explorer was only thirty-five years of age. He was a surgeon in the French Navy, and in July, 1877, undertook his first expedition into the interior of Guiana. Starting from Cayenne, he traversed an almost entirely unknown region, crossed the Tumuc-Humac Mountains, the water-shed between the Maroni and the Yari, a tributary of the Amazon. On a second journey in 1878-79, Crevaux went from Cayenne to the Oyapock, followed it up, and discovered the Kow, an unknown affluent of the Yari, followed the latter to its sources, and visited and explored to their sources the little-known affluents of the Amazon, the Paru, Iça, and Yapura. In 1880 he again set out, this time to the Magdalena and the

Orinoco, whose tributary, the Guyabero, he surveyed. A few months ago the indefatigable explorer started for Rio Janeiro for the purpose of exploring the country between that and the Middle and Upper Amazon, and in attempting to carry out this enterprise he, it is rumoured, has met with his untimely fate. We hope it will turn out to be without foundation.

THE death is announced of Mr. Alexander Leslie, whose name is associated with that of the distinguished Arctic explorer, Nordenskjöld. Mr. Leslie, who was a native of Aberdeenshire, was in his fifty-fourth year. He devoted much time to the study of practical farming, and acquired a considerable knowledge of agricultural chemistry. Proceeding to Sweden, Mr. Leslie resided there for several years, and upon his return to this country he published, in 1879, through Messrs. Macmillan and Co., a narrative of the "Arctic Voyages of Adolf Eric Nordenskjöld, from 1858 to 1879." Our readers will remember that Mr. Leslie was the translator of the famous explorer's own account of "The Voyage of the *Vega* round Asia and Europe." Mr. Leslie was an occasional contributor to the columns of NATURE.

THE Danish steamer *Arcturus*, from Iceland, arrived at Leith on Saturday, and reported heavy casualties and serious loss of life during the recent storms. On May 13, Capt. Schonstrup met with immense ice-floes about fifty miles from the east coast of the island. He afterwards steamed to the south-west, west, and north coasts, but was unable, after leaving Reykjavik, to get near any of the ports for the ice. These coasts were again attempted on June 6, but with the same result, the fields of ice from Spitzbergen and the Polar seas being as extensive and impenetrable as before. Large districts are said to be suffering severely from famine, as the vessels are unable to land the provisions, on the customary arrival of which they depended. The severity of the weather is preventing the growth of the crops, and large numbers of sheep and ponies are dying. Measles, which have not been known in Iceland for the last thirty-five years, are very prevalent, and in Reykjavik alone no fewer than 200 persons were suffering from the epidemic when the steamer left.

DR. HJALTELIN, the distinguished physician of Iceland, so well known for the ready and hearty assistance he gave to all scientific explorers of the island, died suddenly at Reykjavik on June 5.

TORNADOES of unexceptional severity and destructiveness are reported from the Western States of America, particularly Iowa, Illinois, Missouri, and Kansas. One half of the town of Grinnel, Iowa, is stated to have been destroyed, and more than 100 persons killed, this tornado having swept over a tract twenty-five miles long and half a mile wide, with devastating energy.

THE seventh annual report of the Japanese Minister of Education states that there are 28,025 common schools in Japan of which 16,710 are public, and the remainder private; there being an increase of 1316 and 125 respectively, as compared with the previous year. The number of high schools is 107 public and 677 private, there being an increase of 42 and 63 respectively. Besides the above, many *Kindergarten* and primary schools were established. These private schools, even now, play a most important part in Japanese national life and education. Many of them have hundreds of students attracted by the fame of a single teacher. Youths flock from all parts of the country to sit at the feet of a renowned scholar, as men did in Europe to hear Abelard. The most celebrated of these leaders of youth—for this they are, rather than simple schoolmasters in our sense of the word—is Mr. Fukusawa of Tokio, whose translations from European books and original works on the political and social questions of the day, are read far and wide in Japan. The students of this gentleman fill many of the most important offices in the state; some of them recently formed themselves into a patriotic society, and established a newspaper, in which the acts of the government are subject to much caustic criticism. Long after the ordinary educational work of their teacher is done, and the young men have gone out into the world to do for themselves, they continue to reside near him, to study under his direction, and to form classes in which important public questions can be freely discussed under his guidance. One of his classes translated the whole of Adam Smith's "Wealth of Nations" into Japanese, with annotations, and many other important European works, especially those on philosophy and politics, owe their appearance in European dress to Mr. Fukusawa and his pupils. The school has been a real, and, we believe, a highly beneficial power in the state. These "private schools," which have been political associations, and debating clubs, as well as scholastic establishments, have occasionally played important parts at crises of Japanese history. The members of the private schools established in Kagoshima, the capital of Sakuma, originated and led the great rebellion of 1877. Fortunately Mr. Fukusawa's pupils are more peaceful in their objects and methods.

THE French Government has established a prize of 2000*l.*, to be given to the person who in the course of five years—from July 1, 1882, to July 1, 1887—will have invented the most useful application of the Volta pile. Foreigners are allowed to take part in this competition, which was instituted for the first time by Napoleon I., almost as soon as Volta invented his admirable instrument, and has been reopened at several periods.

THE proprietors of houses having a view of the Parc Monceaux have subscribed among themselves a sum for illuminating this garden with a number of Jablochkoff lights. Similar steps will be taken for other public gardens in Paris. The tradesmen located in the Palais Royal are establishing a private company for the same purpose. An experimental trial will be made within a few days with incandescent lights.

ON June 15 M. Marcel Deprez delivered, in the large hall of the Conservatoire des Arts et Métiers, Paris, a lecture on the transmission of electricity to great distances. The lecturer proved that magneto-electric machines could be moved by a current which had circulated through four kilometres of german-silver wire, whose resistance was twelve times longer than a similar wire of copper, and having a few millimetres diameter. M. Marcel Deprez declares that he will go almost to any length in diminishing indefinitely the diameter of the wire of his dynamo-magnetic machine, and that it is by resorting to large dynamos that he will be able to produce a current sufficiently powerful.

COL. LAUSSEDAT, director of the Conservatoire des Arts et Métiers, has placed at the disposition of aëronauts, a dynamometer of special construction for testing scientifically the resistance of their canvass before and after varnishing.

TWO German expeditions will go to American stations in order to observe the transit of Venus in December next. Observations will be taken at Stratford, Connecticut; at Aiken, South Carolina; at Bahia Blanca; and at Punta Arenas.

MR. GILDER, one of the correspondents of the *New York Herald* in Siberia, telegraphs from the Lena Delta, April 24, that he has found the bodies of Capt. De Long and his companions, who, it may be remembered, were in the missing boat belonging to the *Jeannette*. The poor men had evidently perished of cold and hunger.

DR. HASSELBERG of Pulkova has been able to trace the bright line of sodium seen by many observers in the spectrum of Comet Wells, to some distance in the tail of the comet.

THE Merchant Venturers' Company of Bristol have resolved to erect, at an expense of 30,000*l.*, a new Technical School on the site of the old Bristol Grammar School, for the use of the

Bristol Trade and Mining School, founded by the exertions of the late Canon Moseley, in 1855.

A RECENT report by Dr. Bürkner to the Göttingen Royal Society of Sciences, on his "Polyklinik" for ear disorders, gives some instructive facts. In 1881 the number of patients was 516 persons (338 male and 178 female), with 583 different forms of ear disorder. The doctor reckons that a cure was effected in 61·85 per cent. of the patients, and improvement in 15·12 per cent. 211 (or 40·9 per cent) of the patients were of juvenile age, 15 and under. There were 139 cases of injury of the external ear, 15 of the tympanum; 322 of the middle ear, 27 of the inner ear, and 13 sundry. For otorrhœa, pulverised boric acid was largely used. The greatly praised iodoform was fully tried in ear-treatment, but Dr. Bürkner considers it has "no future" in this sense. Leiter's heat-regulator, consisting of very flexible lead tubes, through which water of any desired temperature is conveyed to injured parts of the body, did good service, especially in inflammation.

FOR the Sanitary Institute Congress at Newcastle-upon-Tyne, September 26, the following gentlemen have accepted the presidentship of the various sections:—Dennis Embleton, M.D., F.R.C.P., Section I. Sanitary Science and Preventive Medicine; Henry Law, M.I.C.E., Section II. Engineering and Sanitary Construction; Arthur Mitchell, M.A., M.D., LL.D., F.R.S., Section III. Meteorology and Geology.

MR. W. G. INNES, of Great St. Helens, has sent us a few specimens of photographs of New Zealand scenery, taken by Burton Brothers, of Dunedin. They are beautiful specimens of the photographic art, and many of them are of interest from a geological and ethnological point of view. One photograph gives an excellent idea of the White Terrace at the Rotomahana Hot Springs, others show some of the grand mountains and beautiful bays, native life, &c.

MR. BRYCE WRIGHT has, we understand, received a very fine specimen of the interesting gem known as Alexandrite, from India.

THE enormous glacier, Fon or Svartisen (69° 25′ N., 35° 15′ E.) on the Senjen Island in Norway, and which is the northernmost of its kind in Europe, will shortly be made the object of a remarkable enterprise. It appears that a number of speculative merchants in Bergen have obtained the right of cutting block-ice for export from its surface. Some blocks have already arrived at the latter place, and as the quality of the ice has been found to be good, large shipments may be expected. The glacier is about 120 square miles, and as the distance from its border to the sea is only a couple of miles, the ice may be obtained very cheaply. A similar attempt to utilise the glacier Folgefonden was made some years ago, but failed, owing to the blocks in their downward course repeatedly breaking through the wooden bore or conductor in which they were slid down to the sea.

THE Zoological Museum of the Lund University has just received as a gift from Prof. Nordenskjöld a splendid specimen of the sea-cow, *Rhytina Stelleri*, now extinct, brought by the *Vega* from Behring Island.

PASTEUR'S discoveries having been doubted in Germany, they have been submitted to the appreciation of a special commission in Berlin, and M. Pasteur sent thereto one of his assistants to perform vaccination on sheep. The report has been sent to Paris, and is said to approve the process and to show that it has been quite as efficient in Germany as in France.

THE *Daily News* correspondent at Maritzburg reports that a brilliant comet has been observed there for the last two or three days, in close proximity to the sun.

WE have on our table the following books:—China, by Prof. R. K. Douglas (S.P.C.K.); White's Manual of Naval Architecture, 2nd edition (John Murray); Electric Lighting, by Th. du Moncel, translated by R. Routledge (George Routledge and Sons); La Bourboule, by Dr. G. H. Brandt (H. K. Lewis); the Funeral Tent of an Egyptian Queen, by Villiers Stuart (John Murray); Hot Water Heating, by F. A. Fawkes (Batsford); Notes on Cage Birds, edited by W. T. Green (Upcott Gill); Botanical Atlas, Part II., by Dr. M'Alpine (W. and A. K. Johnstone); Im Fernen Osten, 2 vols, by Gustave Kreitner (A. Hölder); Results of Rain and River Observations made in New South Wales during 1881, H. C. Russell, Sydney; Handbook of Invertebrate Zoology, by W. K. Brooks (Cassino, Boston, U.S.); How to Overcome the Potato Disease, by J. S. Jensen (Menzies); A Synopsis of Elementary Results in Pure and Applied Mathematics, vol. i., section 9, by G. S. Carr (Hodgson and Son).

THE additions to the Zoological Society's Gardens during the past week include an Arabian Baboon (*Cynocephalus hamadryas* ♂) from Abyssinia, presented by the Messrs. James; a Bonnet Monkey (*Macacus radiatus* ♂) from India, presented by Master G. H. Clark; a Chima-chima Milvago (*Milvago chimachima*) from Demerara, presented by Mr. G. H. Hawtayne; two Upland Geese (*Bernicla magellanica* ♂ ♀), five Ruddy-headed Geese (*Bernicla rubidiceps*), a Loggerheaded Duck (*Tachyeres cinereus*) from the Falkland Islands, presented by Mr. F. E. Cobb, C.M.Z.S.; a Rufous-necked Weaver Bird (*Hyphantornis textor*) from West Africa, a Common Lapwing (*Vanellus cristatus*), European, presented by Mr. J. S. Baldwin, F.Z.S.; a Loggerhead Turtle (*Thelassochelys casuana*) from the Straits of Bonifacio, presented by Lord Lilford, F.Z.S.; a White-backed Piping Crow (*Gymnorhina leuconota*) from Australia, deposited; a Black-fronted Antelope (*Cephalophus nigrifrons*) from Africa, a Water Chevrotain (*Hyomoschus aquaticus*) from West Africa, three Darwin's Rheas (*Rhea darwinii*) from Patagonia, two Spanish Blue Magpies (*Cyanopolius cookii*) from Spain, purchased; an Egyptian Goose (*Chenalopex ægyptiaca*), a Chiloe Wigeon (*Mareca chiloensis*), five Mandarin Ducks (*Aix galericulata*), bred in the Gardens. The following insects have emerged during the past week:—Silk Moths: *Actias selene*, *Samia cecropia*; Moths: *Sphinx pinastri*, *Deiliphila euphorbiæ*, *Trochilium apiformis*, *Sciapteron tabaniformis*, *Sesia conopiformis*, *Sesia muscæiformis*, *Hypochera io*, *Callimorpha dominula*; Butterflies: *Vanessa xanthomelas*, *Vanessa urticæ*, *Aporia crabægi*.

OUR ASTRONOMICAL COLUMN

THE APPROACHING TRANSIT OF VENUS.—In deducing the following expressions for determining the times of contacts in the transit of Venus on December 6, for any point upon the earth's surface, the positions of the planet have been taken from Hill's Tables, which had an advantage over Leverrier's at the last transit, and Auwer's semi-diameter is adopted. For the sun the semidiameter deduced by Leverrier from the transits of Mercury has been employed.

For *first external* contact, there results—
Dec. 6, 1h. 56m. 12s. $+[2\cdot5442]\, r \sin l$
$-[2\cdot4793]\, r \cos l \cos (L - 87^\circ\ 35'\cdot0)$.

For *first internal* contact—
Dec. 6, 2h. 16m. 52s. $+[2\cdot5822]\, r \sin l$
$-[2\cdot4768]\, r \cos l \cos (L - 85^\circ\ 31'\cdot9)$.

For *last internal* contact—
Dec 6, 7h. 54m. 0s. $-[2\cdot2894]\, r \sin l$
$+[2\cdot6261]\, r \cos l \cos (L - 138^\circ\ 18'\cdot8)$.

For *last external* contact—
Dec. 6, 8h. 14m. 41s. $-[2\cdot2152]\, r \sin l$
$+[2\cdot6142]\, r \cos l \cos (L - 134^\circ\ 38'\cdot1)$

The angles from N. point for *direct* image are respectively 145°·1, 148°·4, 116°·9, and 113°·5.

In the above formula r is the radius of the earth at the place, l the geocentric latitude, and L the longitude from Greenwich, reckoned *positive* towards the *east*. The resulting times are